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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/820,292

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Jong-Hoon Oh

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Dicke, Billig & Czaja, PLLC  
Suite 2250  
Fifth Street Towers  
100 South Fifth Street  
Minneapolis, MN 55402

EXAMINER

NGHIEM, MICHAEL P


ART UNIT

PAPER NUMBER

2863

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/820,292	Applicant(s) OH, JONG-HOON	
	Examiner Michael P. Nghiem	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6, 12, 20 and 23 is/are allowed.
- 6) ☒ Claim(s) 1-5, 11, 15-19, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 7-10, 13 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

The amendment filed on September 23, 2005 has been acknowledged.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 5, 11, 15-17, 19, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Lawrence (US 2003/0056057).

Regarding claims 1, 11, and 19, Lawrence discloses a multi-chip package and method (Fig. 1) comprising:

- a memory device (104) receiving a clock signal having a frequency (SDRAM receives frequency from an oscillator, paragraph 0004, lines 5-7), the memory device operating at the clock signal frequency (paragraph 0004, lines 5-7) and including a temperature sensor (106) providing a temperature signal representative of a temperature of the memory device (Fig. 1); and

- a logic device (102) providing the clock signal (memory is integrated in processor, paragraph 0026, lines 9-13) and receiving the temperature signal (Fig. 1),

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wherein the logic device adjusts the clock signal frequency based on the temperature signal (paragraph 0018, lines 1-4).

Regarding claims 2 and 17, Lawrence discloses that the memory device comprises a random access memory device (SDRAM, Fig. 1).

Regarding claims 4 and 16, Lawrence discloses that the logic device comprises a microprocessor (paragraph 0018, line 1).

Regarding claims 5 and 21, Lawrence discloses that the temperature signal is indicative of a junction temperature of the memory device (Fig. 1).

Regarding claim 15, Lawrence discloses that the multichip package includes a logic device (102).

Regarding claim 19, Lawrence further discloses providing a clock signal at a first frequency to the memory device when the temperature of the memory chip is less than a threshold temperature (claim 1, lines 7-9).

Regarding claim 22, Lawrence further discloses that the threshold temperature comprises a rated operating temperature of the memory device (paragraph 0004, lines 7-9).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence in view of Ooishi et al. (US 6,731,535).

Lawrence discloses all the claimed limitations as discussed above except the memory device comprises a magnetic random access memory device.

Nevertheless, Ooishi et al. discloses a magnetic random access memory device (column 1, line 13) for the purpose of obtaining high speed operation and high integration capability (column 1, lines 13-22).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide Lawrence with the magnetic random access memory device as disclosed by Ooishi et al. for the purpose of obtaining high speed operation and high integration capability.

***Allowable Subject Matter***

Claims 7-10, 13, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 6, 12, 20, and 23 is allowed.

***Reasons For Allowance***

The **combination** as claimed wherein providing the clock signal at a second frequency to the memory device when the temperature of the memory chip is at least equal to the threshold temperature, wherein the second frequency is less than the first frequency (claims 6, 12, 20, and 23) is not disclosed, suggested, or made obvious by the prior art of record.

***Response to Arguments***

Applicant's arguments filed on September 23, 2005 have been considered but are not persuasive.

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With respect to the 35 USC 102 rejections, Applicants argue that Lawrence does not teach “a system including a logic device that adjusts a clock signal frequency at which a memory device operates based on a temperature signal of the memory device”.

Examiner's position is that Lawrence teaches “a system (Fig. 1) including a logic device (102) that adjusts a clock signal frequency at which a memory device operates (paragraph 0004, lines 5-7) based on a temperature signal of the memory device (Fig. 1) (paragraph 0018, lines 1-4)”. Lawrence discloses that “the SDRAM utilizes an internal oscillator to generate refresh cycles **to maintain the data in the memory cells**” (paragraph 0004, lines 5-7). Thus, the frequency of the refresh cycles of the oscillator is **the clock signal frequency at which the memory device operates**.

Applicants further argue that Lawrence does not teach “providing a clock signal at a first frequency to the memory device when the temperature of the memory device is less than threshold level”.

Examiner's position, as discussed above, is that Lawrence teaches “providing a clock signal at a first frequency to the memory device when the temperature of the memory device is less than threshold level” (claim 1, lines 7-9).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-H.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**MICHAEL NGHIEM**  
**PRIMARY EXAMINER**

Michael Nghiem

December 5, 2005